

Claims

1. A method of defructosylating a fructosylated peptide or protein, characterized by comprising reacting the peptide or protein with an enzyme which is extracted from a plant and exhibits defructosylation action.

2. The defructosylation method according to claim 1, wherein the enzyme which is extracted from a plant and exhibits defructosylation action is extracted from a plant belonging to the family *Zingiberaceae*.

3. The defructosylation method according to claim 1 or 2, wherein the fructosylated peptide has an amino acid sequence represented by any of SEQ ID NOs: 1 to 5.

4. The defructosylation method according to any one of claims 1 to 3, wherein the fructosylated protein is hemoglobin Alc.

5. An enzyme which exhibits defructosylation action on a fructosylated peptide or protein and is extracted from a plant.

6. The enzyme according to claim 5, wherein the plant belongs to the family *Zingiberaceae*.

7. The enzyme according to claim 5 or 6, having the following physical and chemical characteristics a) to h):
a) action: in the presence of oxygen, acting on a fructosyl valine or fructosyl peptide (at least on fructosyl peptides having amino acid sequences represented by SEQ ID NOs: 1 to 5) and catalyzing at least a reaction which produces corresponding valine or non-fructosyl peptide, glucosone, and

hydrogen peroxide;

b) optimum pH: 8.0 to 9.0;

c) range of stable pH: pH 6.0 to 7.0;

d) K_m value for fructosyl valyl histidine: 1.2 mM;

e) range of optimum temperature: 60°C or more;

f) temperature stability: 80% or more of the enzyme activity remains after heat-treatment for 15 minutes at 50°C; and

g) molecular weight: approximately 27 kDa (gel filtration).

8. A method for measuring a fructosylated peptide or protein, characterized by comprising measuring at least one reaction product produced through a defructosylation method according to any one of claims 1 to 4.

9. The method for measuring a fructosylated peptide or protein according to claim 8, wherein the reaction product produced through the defructosylation method is hydrogen peroxide, glucosone, or a defructosyl peptide.